

CLAIMS

1. A facial processing method comprising the steps of:
receiving a two dimensional facial image; and
5 combining the two dimensional facial image and a standard three dimensional facial image to create a three dimensional facial image.
2. The facial processing method of claim 1, further comprising the step of creating the
standard three dimensional facial image.
- 10 3. The facial processing method of claim 2, wherein the step of creating a standard three dimensional facial image includes the steps of:
receiving a plurality of three dimensional facial images; and
combining the plurality of three dimensional facial images to create the standard three
15 dimensional facial image.
4. The facial processing method of claim 1, wherein the combining step includes the steps
of:
combining the two dimensional facial image and standard three dimensional facial image
20 to create a first intermediate three dimensional facial image;
rendering a first intermediate two dimensional facial image based upon the first
intermediate three dimensional facial image;

comparing the first intermediate two dimensional facial image to the two dimensional facial image; and

modifying the first intermediate three dimensional facial image based upon results of the comparison step.

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5. The facial processing method of claim 4, wherein the combining step further includes the step of repeating the rendering, comparing and modifying steps a plurality of times.

6. The facial processing method of claim 4, further comprising the steps of:

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adjusting a pose of the three dimensional facial image; and

rendering a final two dimensional image from the adjusted three dimensional facial image.

7. The facial processing method of claim 4, further comprising the steps of:

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rendering a final two dimensional image from the three dimensional facial image according to a selected lighting.

8. A facial identification method comprising the steps of:

receiving a two dimensional facial image;

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creating a three dimensional facial image from the two dimensional facial image;

adjusting a pose of the three dimensional facial image;

rendering an adjusted two dimensional facial image from the adjusted three dimensional facial image; and

comparing the rendered two dimensional facial image to at least one stored two dimensional facial image to determine a match.

9. The facial identification method of claim 8, wherein the comparing step includes:

5 comparing the rendered two dimensional image to a plurality of stored two dimensional facial images to determine a closest match.

10. The facial identification method of claim 8, wherein the step of creating a three dimensional facial image includes the step of combining the two dimensional facial image and a
10 standard three dimensional facial image to create a three dimensional facial image.

11. The facial identification method of claim 10, further comprising the step of creating the standard three dimensional facial image.

15 12. The facial identification method of claim 11, wherein the step of creating the standard three dimensional facial image includes the steps of:

receiving a plurality of three dimensional facial images; and

combining the plurality of three dimensional facial images to create the standard three dimensional facial image.

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13. A system for identifying in individual comprising:

a camera for acquiring a two dimensional facial image;

means for creating a three dimensional facial image from the two dimensional facial image;

means for adjusting the three dimensional facial image;

means for rendering a final two dimensional image from the adjusted three dimensional

5 image; and

means for comparing the final two dimensional image to at least one stored two dimensional image to determine a match.

14. The system for identifying an individual according to claim 13, further comprising:

10 a database of stored two dimensional images; and

wherein the means for comparing includes means for comparing the final two dimensional image to at least one stored two dimensional image in the database of stored two dimensional images.

15 15. The system for identifying an individual according to claim 14, wherein the means for comparing includes means for comparing the final two dimensional image to a plurality of stored two dimensional images in the database to determine a closest match.

16. The system for identifying an individual according to claim 13, wherein the means for
20 adjusting includes means for changing a pose of the three dimensional facial image.

17. The system for identifying an individual according to claim 13, wherein the means for rendering includes means for rendering the final two dimensional facial image based upon a selected lighting.

5 18. The system for identifying an individual according to claim 13, wherein the means for creating a three dimensional facial image includes:

means for combining the two dimensional facial image with a standard three dimensional facial image to create an intermediate three dimensional facial image; and

10 means for rendering an intermediate two dimensional facial image from the intermediate three dimensional facial image;

means for comparing the intermediate two dimensional facial image to the two dimensional facial image; and

15 means for adjusting the intermediate three dimensional facial image based upon results of the comparison of the intermediate two dimensional facial image to the two dimensional facial image.

19. A system for creating a three dimensional facial image from a two dimensional facial image comprising:

a memory storing a standard three dimensional facial image; and

20 means for combining the two dimensional facial image and the standard three dimensional facial image to create the three dimensional facial image.

20. The system for creating a three dimensional facial image from a two dimensional facial image according to claim 19, wherein the means for combining includes:

means for combining the two dimensional facial image with a standard three dimensional facial image to create an intermediate three dimensional facial image; and

5 means for rendering an intermediate two dimensional facial image from the intermediate three dimensional facial image;

means for comparing the intermediate two dimensional facial image to the two dimensional facial image; and

means for adjusting the intermediate three dimensional facial image based upon results of
10 the comparison of the intermediate two dimensional facial image to the two dimensional facial image.